



## DECLARATION

I, BAE, Jung-ah translator, working at Leaders Bldg. 3F, 1599-11 Seocho-dong, Seocho-gu, Seoul 137-070, Republic of Korea, do hereby declare that I am familiar with the English language as a Korean and that the attached is a true English translation of the Korean transcript of Korean Patent Application No. **2003-0040850** filed with the Korean Intellectual Property Office on **June 23, 2003**.

April 4, 2007

A handwritten signature in cursive script, appearing to read "Bja", which is the signature of BAE, Jung-ah.

**BAE, Jung-ah**

## COMPUTER

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of a computer according to the present invention;

FIG. 2 is an exploded perspective view of a main board attaching surface of the computer in FIG. 1;

FIG. 3 is a perspective view of a holder in FIG. 2;

FIGS. 4 and 5 illustrate that a main board is movable on the main board attaching surface of FIG. 2;

FIGS. 6 through 8 illustrate a process of combining the holder of FIG. 3 to the main board attaching surface of FIG. 5 in sequence; and

FIG. 9 illustrates that the holder supports a main board larger than that of FIG. 5.

## &lt;Reference numerals of elements&gt;

1: casing	2: casing cover
10: front bezel	20: main board
30: holder	41: latching part
42: guiding projection	
51: boss hole	60: boss

## BACKGROUND OF THE INVENTION

The present invention relates to a computer, and more particularly, to a computer in which a main board is easily

attached and detached.

Generally, a computer includes a box shaped casing formed with at least one opening side, and a casing cover to cover the opening of the casing.

In the front of the casing are disposed a hard disk drive, a floppy disk drive, a CD-ROM (compact disc - read only memory) drive, etc., and on an inside wall of the casing is disposed a main board mounted with a CPU (central processing unit), a RAM (random access memory), and an expanding card such as a graphic card, a sound card, etc.

Such a main board can be attached onto the inside wall of the casing with various devices. For example, there is a main board supporting device disclosed in Korean Utility Model First Publication No. 1998-4735, wherein the main board supporting device comprises a supporting projection protruding from a casing, a bracket to support a main board supported by the supporting projection, an elastic member allowing the bracket to slide elastically, and a guide part to guide the bracket elastically sliding by the elastic member.

However, if there is proposed a main board supporting device having a structure simpler than the conventional main board supporting device, a user can more easily attach the main board to and detach it from the casing. Further, from a manufacturer's point of view, time taken to assemble

the computer is reduced and therefore the computer is improved in its productivity.

Further, if a position of the main board supporting device varies according to sizes of the main board, a user can conveniently replace the main board with another one regardless of the sizes of the main board.

#### ASPECT OF THE INVENTION

Accordingly, it is an aspect of the present invention to provide a computer in which a main board is easily attached and detached.

#### CONFIGURATION OF THE INVENTION

The foregoing and other aspects of the present invention are achieved by providing a computer comprising a casing forming an outer appearance and having a main board attaching surface to which a main board is attached, further comprising a main board supporting unit provided on the main board attaching surface so as to support the main board, the main board supporting unit comprising a holder having a locking part, slidably combined to the main board attaching surface, and preventing the main board attached onto the main board attaching surface from moving; and a guiding part formed on the main board attaching surface at a position spaced from the main board so as to guide the

holder, the locking part being locked to the guiding part.

According to an aspect of the invention, the holder comprises a main body having the locking parts respectively formed in opposite sides thereof; a first grip part upwardly extended from each locking part and allowing the pair of locking parts to move toward and away from each other; a holding part provided at an end of the main body between the pair of first grip parts so as to support one edge of the main board; a second grip part protruding from an upper surface of the main body at a position opposite to the holding part and pushing the main body to slide; and a guiding elongated hole formed on the main body between the holding part and the second grip part.

According to an aspect of the invention, the guiding part comprises the pair of latching parts being apart from each other corresponding to the width of the holder and to which the locking parts of the holder are locked; and a guiding projection protruding from the main board attaching surface between the pair of latching parts and inserted into the guiding elongated hole of the holder so as to guide the holder slidably.

According to an aspect of the invention, each latching part is formed by bending the main board attaching surface upwardly to accommodate the edge of the main body, and the pairs of latching parts are plurally arranged at regular

intervals along a lengthwise direction of the holder.

According to an aspect of the invention, the guiding projection comprises an extending part protruding from the main board attaching surface, and an insertion part extended from the extending part and having a diameter larger than that of the extending part, and the guiding elongated hole includes an insertion section having a width larger than that of the insertion part, and a moving section communicated with the insertion section and having a width smaller than that of the insertion part.

According to an aspect of the invention, the computer further comprises a combining unit to attach the main board to the main board attaching surface, wherein the combining unit includes at least one boss hole formed on the main board; and at least one boss protruding from the main board attaching surface and inserted into the boss hole.

According to an aspect of the invention, the boss includes a column part protruding from the main board attaching surface; a head part having a diameter larger than that of the column part; and a recessed part circumferentially formed between the column part and the head part, and the boss hole includes a broad section having a width larger than the diameter of the head part of the boss; and a narrow section having a width smaller than the diameter of the broad section and communicated with the

broad section.

The embodiments are described below in order to explain the present invention by referring to the figures.

As shown in FIG. 1, a computer according to the present invention comprises a box shaped casing 1 formed with at least one opening side, a casing cover 2 to cover the opening of the casing 1, and a front bezel 10 combined to the front of the casing 1.

Inside the casing 1 is provided a main board attaching surface 6 to which a main board 20 is attached, wherein the main board 20 is mounted with a CPU, a RAM, and an expanding card 5 such as a graphic card, a sound card, etc.

The casing cover 2 is formed with a plurality of air through holes 3 through which heat from components provided in the casing 1 is dissipated. Above the air through holes 3, the casing cover 2 is formed with a grip groove 4 allowing a user to easily grip the casing cover 2 when the user combines the casing cover 2 to or separates it from the casing 1.

In a lower part of the front bezel 10 is formed a plurality of air inlet slots 11 through which air flows into the casing 1. Above the air inlet slots 11, the front bezel 10 is formed with a plurality of exposing holes 15 through which peripheral units 12 such as a CD-ROM drive 12, a floppy disk drive 13, etc. are exposed to the outside.

Here, the exposing holes 15 are disposed corresponding to through holes 16 formed in the front of the casing 1, respectively.

The main board 20 is slidably attached onto the main board attaching surface 6 with a combining unit, being supported by a main board supporting unit.

The combining unit includes a plurality of boss holes 51 formed on the main board 20, and a plurality of bosses 60 protruding from the main board attaching surface 6 and inserted into the boss holes 51.

Each boss 60 includes a column part 61 standing on the main board attaching surface 6, a head part 62 incorporated with the column part 61 and having a diameter larger than that of the column part 61, and a recessed part 63 circumferentially formed between the column part 61 and the head part 62.

The boss hole 51 includes a broad section 52 having a width larger than the diameter of the head part 62 of the boss 60, and a narrow section 53 having a width smaller than the diameter of the broad section 52 and communicated with the broad section 52. Therefore, at an initial position of when the main board 20 is first attached to the main board attaching surface 6, the head part 62 of the boss 60 passes through the broad section 52. Then, in the state that the head part 62 passes through the broad



section 52, the main board 20 is slid in a direction of an arrow "A" shown in FIG. 4, so that the recessed part 63 of the boss 60 is held by the narrow section 53 as shown in FIG. 5. That is, the main board 20 illustrated in FIG. 5 is in a holding position at which the recessed part 63 is held by the narrow section 53.

The main board supporting unit includes a holder 30 to prevent the main board 20 from moving, and a guiding part to guide the holder 30.

The holder 30 is slidably combined to the main board attaching surface 6, and prevents the main board 20 from moving from the holding position.

As shown in FIG. 3, the holder 30 comprises a main body 31 having a pair of locking parts 32 respectively formed in opposite sides thereof so as to be locked to a latching part 41 of the guiding part (to be described later), a pair of first grip parts 34 upwardly extended from the respective locking parts 32 and allowing the locking parts 32 to move toward and away from each other, a holding part 35 provided at an end of the main body 31 between the first grip parts 34 so as to hold one edge of the main board 20, a second grip part 36 protruding from an upper surface of the main body 31 at a position opposite to the holding part 35 and pushing the main body 31, and a guiding elongated hole 37 formed on the main body 31

between the holding part 35 and the second grip part 36.

In the main body 31 adjacent to the first grip part 34 is formed a cutting part 33, which allows the first grip parts 34 to elastically move toward and away from each other, thereby allowing the locking parts 32 to elastically move toward and away from each other.

The guiding part is formed on the main board attaching surface 6 at a position spaced from the main board 20, and employed for guiding the holder 30 slidably.

The guiding part comprises the pair of latching parts 41 being apart from each other corresponding to the width of the holder 30 and to which the locking parts 32 of the holder 30 are locked, and a guiding projection 42 protruding from the main board attaching surface 6 between the latching parts 41 and inserted into the guiding elongated hole 37 of the holder 30 so as to guide the holder 30 slidably.

Each latching part 41 is formed by cutting and bending the main board attaching surface 6 upwardly to accommodate the edges of the main body 31. The pairs of latching parts 41 being apart from each other corresponding to the width of the holder 30 are plurally arranged at regular intervals along a lengthwise direction of the holder 30. In this embodiment, three pairs of latching parts will be referred to as first latching parts 41a, second latching parts 41b

and third latching parts 41c in sequence of being close to the main board 20. Thus, the pair of locking parts 32 are selectively locked to one of the pairs of latching parts 41a, 41b and 41c according to the size of the main board 20 to be attached to the main board attaching surface 20.

The guiding projection 42 comprises an extending part 44 protruding from the main board attaching surface 6, and an insertion part 43 extended from the extending part 44 and having a diameter larger than that of the extending part 44, so that the guiding projection 42 is inserted in the guiding elongated hole 37 of the holder 30 and employed in guiding the holder 30 slidably.

Further, the guiding elongated hole 37 includes an insertion section 38 having a width larger than the diameter of the insertion part 43, and a moving section 39 communicated with the insertion section 38 and having a width smaller than that of the insertion part 43, so that the guiding projection 42 can slide through the guiding elongated hole 37, thereby guiding the holder 30 slidably.

With this configuration, in the computer according to the present invention, a process of attaching the main board 20 onto the main board attaching surface 6 will be described hereinbelow.

First, the main board 20 is put on the main board attaching surface 6, with the head parts 62 of the bosses

60 passing through the boss holes 51 of the main board 20, respectively. At this time, the main board 20 can move freely in the state that the head parts 62 of the bosses 60 being passed through the broad section 52, which is called the initial position (refer to FIG. 4).

Then, as shown in FIG. 4, a user slides the main board 20 in the direction of the arrow "A" from the initial position, so that the head part 62 of the boss 60 moves to the narrow section 53 of the boss hole 51 and the recessed part 63 of the boss 60 is held by the narrow section 53. At this time, the main board 20 is held on the main board attaching surface 6, which is called the holding position (refer to FIG. 5).

Then, as shown in FIG. 6, a user presses the pair of first grip parts 34 of the holder 30 to be closer together, so that the pair of locking parts 32 can move closer together because of the cutting part 33. In this state, the holder 30 is inserted between the pair of third latching parts 41c formed on the main board attaching surface 6, with the insertion part 43 of the guiding projection 42 passing through the insertion section 38 of the guiding elongated hole 37. Then, a user pushes the holder 30 in the same direction that the main board 20 slides (the arrow direction "A" of FIG. 4). At this time, as shown in FIG. 7, the insertion part 43 passed through the insertion section

38 of the guiding elongated hole 37 moves to the moving section 39 until the locking parts 32 of the holder 30 reach the first latching part 41a, passing through the third and second latching parts 41c and 41b in sequence. When the locking parts 32 reaches the first latching part 41a, a user releases the first grip parts 34, so that the pair of locking parts 32 elastically returns to the original state and are respectively locked to the pair of first latching parts 41a, as shown in FIG. 8. Thus, the holder 30 is combined to the main board attaching surface 6. At this time, the holding part 35 holds one edge of the main board 20, so that the main board 20 is firmly attached to the main board attaching surface 6 without being movable.

Contrarily, the main board 20 can be detached from the main board attaching surface 6 in the inverse order to the foregoing attaching process. First, a user presses the pair of first grip parts 34 of the holder 30 to be closer together, thereby releasing the locking parts 32 from the first latching parts 41a. In this state, the holder 30 is drawn in the opposite direction of the arrow "A" until the insertion part 43 reaches the insertion section 38 of the guiding elongated hole 37, and then the holder 30 is separated from the main board attaching surface 6. According as the holder 30 preventing the main board 20 from moving is removed, the main board 20 can be slid.

Therefore, when the head part 62 of the boss 60 reaches the broad section 52 of the boss hole 51 by sliding the main board 20 in the opposite direction of the arrow "A", the main board 20 can be detached from the main board attaching surface 6.

On the other hand, as shown in FIG. 9, in the case of a main board 20a larger than the main board 20 of FIG. 8 in length of "L", the main board 20a can be also firmly attached onto the main board attaching surface 6 by the foregoing attaching process, with the locking parts 32 of the holder 30 being locked to the second latching parts 41b.

Thus, in the computer according to the present invention, the main board can be easily attached to and detached from the casing, so that, from a manufacturer's point of view, time taken to assemble the computer is reduced and therefore the computer is improved in its productivity. Additionally, the components are prevented from damage which may occur while the main board is attached to or detached from the casing.

Further, in the computer according to the present invention, the pairs of latching parts are arranged at regular intervals along the lengthwise direction, so that the locking parts of the holder to hold the main board can be selectively locked to the latching parts according to the size of the main board. Therefore, various sizes of the

main board can be firmly attached to the casing.

#### EFFECT OF THE PRESENT INVENTION

As described above, the present invention provides a computer, in which a main board is easily attached to and detached from a casing, so that time taken to assemble the computer is reduced and therefore the computer is improved in its productivity, components are prevented from damage which may occur while the main board is attached to or detached from the casing, and various sizes of the main board can be firmly attached to the casing.